

Reply to Office Action dated August 30, 2007

REMARKS

Claims 1, 3, 5, 8-15 and 18-21 are pending in this application. By this Amendment, claims 1, 8, 10, 12, 14, 18 and 20-21 are amended, and claims 6-7 and 16-17 are canceled without prejudice or disclaimer. Various amendments are made for clarity and are unrelated to issues of patentability.

Entry of the amendments is proper under 37 C.F.R. §1.116 because the amendments: (1) place the application in condition for allowance; (2) do not raise any new issues requiring further search and/or consideration; and/or (3) place the application in better form for appeal, should an appeal be necessary. More specifically, independent claim 1 is amended to include features of dependent claims 6-7 and independent claim 14 is amended to include features of dependent claims 16-17. Since these features have already been examined, no new issues are raised. Entry is thus proper under 37 C.F.R. §1.116.

The Office Action rejects claims 1, 3 and 14-15 under 35 U.S.C. §102(b) by U.S. Patent 5,754,155 to Kubota et al. (hereafter Kubota). The Office Action also rejects claim 5 under 35 U.S.C. §103(a) over Kubota in view of U.S. Patent 6,756,958 to Furuhashi et al. Still further, the Office Action rejects claims 6-7 and 16-21 under 35 U.S.C. §103(a) over Kubota in view of U.S. Patent 6,118,425 to Kudo. The Office Action also rejects claims 8-13 under 35 U.S.C. §103(a) over Kubota in view of Kudo and U.S. Patent 5,786,794 to Kishi et al. The rejections are respectfully traversed with respect to the pending claims.

Independent claim 1 recites a scan driving unit for controlling an upper voltage value and a lower voltage value which are applied to an Integrated Circuit (IC) for driving a scan electrode of a flat display panel. Independent claim 1 also recites that the scan driving unit comprises a

Reply to Office Action dated August 30, 2007

timing control unit for outputting a timing control signal, an upper voltage generating unit for outputting the upper voltage value, a lower voltage generating unit for outputting the lower voltage value, and an amplifying unit for amplifying the upper voltage value applied to the scan driving unit to a predetermined level, wherein the scan driving unit selectively outputs one of the amplified upper voltage value and the lower voltage value on the basis of the timing control signal.

The applied references do not teach or suggest all the features of independent claim 1, which includes features of previous dependent claims 6-7. Additionally, the applied references do not teach or suggest all the features of independent claim 14, which includes features of previous dependent claims 16-17.

Kubota discloses a scan signal line driving circuit for supplying a signal to picture elements 4. Kubota also discloses a first transistor for changing a display state of the picture elements 4 according to a change in its threshold voltage, and a second transistor formed on a substrate where the first transistor is formed and having approximately a same threshold voltage as the first transistor. Kubota also discloses a power supply circuit 11 having a reference voltage generating circuit 12 for generating a reference voltage based upon the threshold voltage of the second transistor TR (PIX) and a current supplying circuit 13 for supplying a current to the scan signal line driving circuit based upon the output of the reference voltage generating circuit 12. See col. 9, lines 4-48.

Kubota does not teach or suggest that the scan driving unit selectively outputs one of the amplified upper voltage value and the lower voltage value on the basis of the timing control signal, as recited in independent claim 1. Rather, Kubota discloses that a power supply voltage

Reply to Office Action dated August 30, 2007

V_{GH} of high level and a power supply voltage V_{GL} of low level are applied to the scan signal line driving circuit 3 by the power supply circuit 11. See Kubota's col. 9, lines 4-11. This does not teach or suggest that the scan driving unit selectively outputs one of the amplified upper voltage value and the lower voltage value on the basis of the timing control signal, as recited in independent claim 1.

When discussing previous dependent claim 7, the Office Action (on page 5) cites Kubota's timing signal TIM in FIG. 20. However, Kubota's display device shown in FIG. 20 differs from Kubota's display device shown in FIG. 1 (which is cited in the Office Action as corresponding to the features of base independent claim 1). Kubota's TIM signal is applied to the scan signal line driving circuit 102 to output a scan signal. See Kubota's col. 1, lines 15-28. This does not relate to the scan driving unit selectively outputs one of the amplified upper voltage value and the lower voltage value on the basis of the timing control signal, as recited in independent claim 1. Further, there is no suggestion of how the TIM signal (FIG. 20) may be applied to the display device of FIG. 1 (so as to selectively output one of an amplified upper voltage value and a lower voltage value). Kubota does not teach or suggest all the features of independent claim 1.

Additionally, Kubota does not teach or suggest that the scan driving unit selectively outputs the amplified current or the lower voltage value based on the timing control signal, as recited in independent claim 14.

The other applied references do not teach or suggest the features of independent claims 1 and 14 missing from Kubota. More specifically, Kudo discloses a voltage selector 231 for receiving a voltage V_{yHd} and a voltage V_{yHa} at a level slightly lower than the voltage V_{yHd} . See

Reply to Office Action dated August 30, 2007

Kudo's FIG. 12. Kudo outputs either one of V_{yHd} or V_{yHa} in accordance with a CCH signal, and outputs voltage V_{yH} . Kudo also discloses a voltage selector 232 for receiving the voltage V_{yLd} and a voltage V_{yLa} (at a level slightly higher than the voltage V_{yLd}). Kudo outputs either one of V_{yLd} or V_{yLa} in accordance with a CCL signal, and generates voltage V_{yL} . However, the above features of Kudo do not teach or suggest the features of independent claims 1 and 14 missing from Kubota.

Still further, Furuhashi discloses an amplifying circuit and a current amplifying circuit. Further, Kishi discloses diodes D02, D03 connected in parallel to transistors TR6, TR7 of the push-pull type driver circuit 55. Furuhashi and Kishi do not teach or suggest the missing features of independent claims 1 and 14.

Accordingly, Kubota, Kudo, Furuhashi and Kishi, either alone or in combination, do not teach or suggest that the scan driving unit selectively outputs one of the amplified upper voltage value and the lower voltage value on the basis of the timing control signal, as recited in independent claim 1. Further, Kubota, Kudo, Furuhashi and Kishi, either alone or in combination, do not teach or suggest that the scan driving unit selectively outputs the amplified current or the lower voltage value based on the timing control signal, as recited in independent claim 14.

Accordingly, each of independent claims 1 and 14 defines patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

Reply to Office Action dated August 30, 2007

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1, 3, 5, 8-15 and 18-21 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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